The opinion in sup port of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DONALD W. MALACKOWSKI,
JOSE LUIS MOCTEZUMA DE LA BARRERA,
DAVID E. HERSHBERGER, MARKUS BOHRINGER, PETER FORST,
ULRICH BUEHNER, MARTIN STANGENBERG,
JERRY A. CULP, and KLAUS WELTE

Appeal 2006-1914
Application 09/764,609
Technology Center 3700

Decided: June 21, 2007

Before: STUART S. LEVY, ROBERT E. NAPPI, and
ANTON W. FETTING, *Administrative Patent Judges*.

LEVY, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

Appellants appeal under 35 U.S.C. § 134 (2002) from a final rejection of claims 1-34 and 80-106.[1] Subsequent to the final rejection, the Appellants cancelled[2] claims 2, 24, 30, 101, 103, and 104. Thus, claims 1, 3-23, 25-29, 31-34, 80-100, 102, 105, and 106 remain, and are under rejection. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

Appellants invented a system for displaying and guiding a series of instruments to a surgical site located relative to a body of a patient. (Specification 1.)

Claim 1 is representative of the invention and reads as follows:

1. A smart instrument for use in a surgery system, comprising:

a housing;

a plurality of light emitting diodes coupled to the housing and being adapted to fire independently;

a memory circuit for storing information related to the smart instrument; and

a wireless transceiver adapted to communicate with the surgery system, wherein bi-directional communication of the smart instrument with the surgery system is solely through a wireless communication system and wherein the smart instrument transmits the information stored on the memory circuit in response to a received signal from the surgery system when the smart instrument is placed within a field of detection.

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[1] Application filed January 17, 2001. The real party in interest is Howmedica Liebinger, Inc. D/B/A Stryker Liebinger.

[2] The Examiner entered the April 28, 2005 amendment canceling these claims on May 11, 2005.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Chader	5,617,857	Apr. 08, 1997
Acker	6,453,190	Sep. 17, 2002 (eff. Filed Dec. 10, 1998)

The Examiner has rejected claims 1, 3-23, 25-29, 31-34, 80-100, 102, 105, and 106 under 35 U.S.C. § 103(a) (2004) as being unpatentable over Chader.

The Examiner has rejected claims 1, 3-23, 25-29, 31-34, 80-100, 102, 105, and 106 under 35 U.S.C. § 103(a) (2004) as being unpatentable over Chader in view of Acker.

We observe at the outset that Appellants only present arguments with respect to independent claims 1, 23, and 29. Accordingly, we select these claims as representative of the group; see 37 C.F.R. § 41.37(c)(1)(vii). With regard to the rejection of the claims as being unpatentable over Chader, Appellants contend that in rejecting claim 1, the Examiner has not properly considered the invention of claim 1 as a whole, and has not considered the disclosure of Chader as a whole, because Chader only contemplates a smart instrument that is hard-wired to the computer system. It is argued that if it were an easy expedient, Chader would have described both wired and wireless systems. (Br. 4.)

Appellants further contend that Chader never disclosed or suggested the concept of recognizing the device and beginning the act of querying the device as required by claim 1, when the device is placed within the field of view of the system. (*Id.*)

Appellants additionally contend that they submitted evidence in the form of two Declarations to the Examiner showing the unobvious nature of the invention as claimed, and that the Examiner dismissed this evidence as statements which amount to an affirmation that the claimed subject matter functions as it was intended to function. (Br. 4-5.)

With regard to claim 23, Appellants further contend that the only release button described in Chader is to enable the device to be coupled to the hard-wired system, and that without the hard wiring, there would be no need for a release button. (Br. 5.)

The Examiner contends that the general concept of and common understanding of wireless transmission is old and well known in the signal transmission art and is well within the level of ordinary skill. The Examiner opines that one of ordinary skill in the art is limited to either hard wired or wireless transmission of signals the selection of either known option would have been obvious to the skilled artisan, and that one would have been motivated by the inherent desirable features of using wireless transmissions over wired transmissions. (Answer 3-4.)

The Examiner adds that upon modifying Chader to be wireless, the communications would be solely wireless because it doesn't make much sense to wirelessly transmit some signals while transmitting others over a hard wire. (Answer 5.)

In the Reply Brief, Appellants contend that:

> In this instance, the term "activation button" is explicitly used and described in the specification as being a button connected to the smart instrument that may be used to cause the computer system to selectively obtain information from the smart

> instrument only when the activation button is activated. (See, e.g. ¶0104.) (Reply Br 4)
>
> As argued by applicant throughout the prosecution of this application, the wireless communication between the smart instrument and the computer system was not obvious at the time of the invention due at least in part to the fact that it was not thought a wireless communication system would be adequate to transfer the large volume of data. (Reply Br. 4-5)
>
> The Lack Of Any Suggestion of a Wireless Data Communication Link Between the Smart Instrument and the Computer System in Chader et al. is Evidence that Such Wireless Data Communication Was Not Considered an Obvious Alternative to the Hard Wired Data Communication System Disclosed Therein. (Emphasis original) (Reply Br. 5)
>
> [T]the Rule 132 declaration of Dr. Jay Klarsfeld states that the wireless, hardwired issue is so important that a number of companies have abandoned hardwired active optical systems in favor of passive wireless systems, and have not developed wireless active tracking devices as claimed in the present application. (Reply Br. 7)
>
> [T]hese Rule 132 Affidavits provide direct evidence that the device claimed in this application meets a long felt and previously unmet need in the industry. (Reply Br. 7)

With regard to the rejection of the claims over Chader in view of Acker, Appellants contend that:

> The examiner has not shown any motivation that would lead one of ordinary skill in the art to modify the teaching of Chader with the teaching of Acker. (Br. 7.)

> [S]ystems of the type disclosed in Acker do not transmit data relative to the configuration of these magnetic devices to the receiving unit. These units merely transmit magnetic fields that are detected and interpreted by the receiving unit to determine the location of the sending unit. (Br. 6.)
>
> At the time of the Chader invention and at the time the present invention was made, it would have been recognized that the amount of data that needed to be transferred between the instrument and the systems necessitated a hard wired systems for the type of systems as claimed. (*Id.*)
>
> Acker does not disclose an interchangeable feature nor does Chader. (*Id.*)

The Examiner contends (Answer 7) that

> Acker et al. explicitly teaches that although the connection between the device mounted on the instrument (which is analogous to Chader's housing 32 in Figure 2 or 50 in Figure 3) and the position detecting system (which is analogous to Chader's position detecting system 14,16) is hard-wired with a plug, such hard-wired connection can be replaced by a wireless connection (col. 11, line 61-col. 12, line 4). Acker et al. offers this motivation: to avoid "the physical encumbrance of loose wires trailing from the instrument" (col. 12, lines 3-4).

We affirm.

ISSUE

With regard to the rejection under 35 U.S.C. § 103(a) as being unpatentable over Chader, the issue is whether the teachings and suggestions of Chader would have suggested the language of the claims. The issue turns on whether the Examiner's line of reasoning, by itself, is sufficient to make up for the deficiencies of Chader. With regard to the rejection of the claims

under 35 U.S.C. § 103(a) as being unpatentable over Chader in view of Acker, the issue is whether Acker would have suggested to an artisan the replacement of the tethered connection of Chader with a wireless connection, and whether the buttons of the prior art would have suggested the activation and release buttons as claimed. The issue turns on whether the evidence and arguments provided by Appellants is sufficient to overcome the strength of the prima facie case of obviousness articulated by the Examiner.

FINDINGS OF FACT

We find that the following enumerated findings are supported by at least a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d 1422, 1427, 7 USPQ2d 1152, 1156 (Fed. Cir. 1988) (explaining the general evidentiary standard for proceedings before the Office).

1. Appellants invented a system for displaying and guiding a series of instruments to a surgical site located relative to a body of a patient. (Specification 1.)

2. Known frameless stereotactic systems utilize optical, RF, magnetic, audio, or other signal systems to communicate between the surgical instruments and the computer system. Typically, the surgical instruments are either tethered to the computer system or are wireless. Wireless instruments carry a system-compatible emitter or sensor for communication through LEDs or RF systems to the computer system. Tethered instruments can add complexity to the system by limiting the range of motion of the instrument and adding additional wires and cables to route and negotiate during the surgery. Range of motion of the instrument is very important during the surgery itself. (Specification 2.)

3. It is an object of the invention to provide an image-guided surgery system which enables easy, fast and accurate initialization, calibration, and control of a series of image guided surgery instruments. This object is achieved by providing wireless instruments with several improvements.(Specification 4.)

4. The improved communication path allows the improved instruments to be calibrated much easier and faster than conventional instruments. By storing the calibration information in the instruments themselves the image-guided system of the invention is capable of re-calibrating damaged or imperfect instruments without going through a complex field calibration process. (Specification 5.)

5. The ability to store an instruments calibration and emitter positions within each individual instrument also eases a manufacturing process that traditionally required the instruments to be manufactured to a tight tolerance. (*Id.*)

6. Another object of the invention is an improved control interface between the user operating the instruments and the computer system. (Specification 6.)

7. The invention accomplishes this object by providing operating controls integrated into the instruments. (*Id.*)

8. An additional object of the invention is to provide an improved image-guided surgery computer cart assembly for housing the computer system. (*Id.*)

From our review of Chader, we find:

9. [A]n imaging system for correlating the position of medical instruments with scanned images of the body [is disclosed] . (Chader, col. 1, ll. 8-10.)

10. One particular advantage of such a system is that it may be configured to track a wide variety of medical instruments simply by reinitializing the imaging system each time a new instrument is attached so that the system will be properly configured according to the attached instrument. Such initialization information can include, for example, the number of energy-emitting elements on the instrument, the location of the energy-emitting elements relative to a work portion of the medical instrument, and the like. Usually, such information is manually entered into the computer, such as by use of a keyboard or the like. However, manually initializing the imaging system in such a manner suffers from a number of serious drawbacks. (Chader, col. 1, l. 56 – col. 2, l. 1.)

11. [I]t would be desirable to provide improvements in the initialization of the imaging system so that initialization information can correctly and efficiently be input into the system. Such improvements should also provide improved safety by ensuring that the imaging system is properly initialized upon connection of each type of medical instrument. (Chader, col. 2, ll. 14-20.)

12. The imaging system further includes a means for detecting the energy and a processor for determining the location of the medical instrument based on the detected energy. Such an imaging system is improved by providing a means on or in the medical instrument for storing initialization information, such as the location of the energy-emitting means relative to the instrument body. (Chader, col. 2, ll. 49-55.)

13. Optionally, the storing means may include information relating to the particular configuration of the attachment so that different types of attachments may be employed without having to manually enter initialization information regarding the configuration of the attachment. (Chader, col. 3, ll. 21-26.)

14. With such a configuration, the storing means will include information relating to the location of the energy-emitting elements relative to the selected type of instrument body so that the processor

may be initialized for the selected type of instrument body. (Chader, col. 3, ll. 30-34.)

15. In yet another aspect, the medical instrument will preferably include means for detecting when the attachment has been connected to the instrument body and then subsequently removed. (Chader, col. 3, ll. 51-54.)

16. In still a further alternative aspect, the particular type of instrument body is detected upon connection of the attachment to the instrument body. (Chader, col. 4, ll. 41-43.)

17. [T]he location of the medical instrument **12** may be tracked relative to the patient P in real time and correlated with the previously produced images of the patient's body which are displayed on a screen **28** of the host computer **18**. To track the medical instrument **12** in this manner, the medical instrument **12** is advanced into the patient P while the energy-emitting elements **20** are energized and detected by the sensor assembly **16**. The elements **26** on the reference frame **24** are also energized and detected so that the location of the medical instrument **12** relative to the patient P may be tracked by the processor **14**, even when the patient P is moved. (Chader, col. 5, ll. 51-62.)

18. An image can be produced on the screen **28** showing a position marker of the instrument **12** relative to the previously produced images of the body. (Chader, col. 5, l. 66 – col. 6, l., 2.)

19. [T]he processor **14** will be able to recognize the characteristics of the medical instrument **12** upon connection of the instrument to the processor **14** without requiring the manual entry of the instrument's type or other configuration information into the processor **14**. (Chader, col. 6, ll. 56-60.)

20. [T]he medical instrument **12** may optionally be provided with one or more buttons **46** that is placed in communication with a read switch controller **48** when the instrument **12** is connected to the processor **14**. When the button **46** is depressed, the read switch controller **48** signals

the system controller **40** to perform a specific function. In this way, the button **46** and the controller **48** may be employed to perform a variety of functions, such as controlling the acquisition of data by the imaging system or driving applications software in the host computer **18**. For example, the button **48** may be depressed to obtain a specific coordinate at the point where the button **48** is depressed. Alternatively, the medical instrument **12** may be placed over a particular portion of the patient P and the button **48** depressed to produce an image of the selected portion of the screen **28**. (Chader, col. 7, ll. 8-21.)

21. As previously described, the memory module **36** may be integrally formed with the instrument body **32** or may be included in a separate attachment that may be removably connected to the instrument body **32**. (Chader, col. 7, ll. 22-25.)

22. In a further exemplary alternative, the imaging system **10** will be constructed to detect the particular type of instrument body **32** that is connected to the attachment **50.** (Chader, col. 8, ll. 16-18.)

23. Based on the amount of current sensed by the current sensor **62**, the system controller **40** is able to determine the particular type of attached instrument body **32**. The processor **14** may then be configured according to the attached medical instrument. (Chader, col. 8, ll. 50-54.)

From our review of Acker, we find that

24. The [] invention relates to medical probes having field transducers used for detecting the disposition of the probe, and to the medical procedures utilizing such probes. (Acker, col. 1, ll. 35-37.)

25. [T]he diverse medical procedures require numerous different tools for use within the body. It would be desirable if any such tool could be guided and located in the same manner as the probes discussed above, without the need to adapt or redesign the tool to accommodate the field transducer or position sensor. (Acker, col. 2, ll. 57-63.)

> 26. Other devices for detecting disposition of probes equipped with position sensors by transmission of non-ionizing fields are known in the art. . . . the disposition of the movable field transducer can be calculated from the characteristics of the transmitted. (Acker, col. 6, ll. 26-37.)
>
> 27. [T]he system determines the position of object **60** in the frame of reference of reference field transducers or antennas **52** using device **28** and the first or movable transducer **30**. (Acker, col. 7, ll. 6-9.)
>
> 28. Following the calibration cycle, the system continues to monitor the position and orientation of the first field transducer **30** and hence device **28**. (Acker, col. 8, ll. 32-34.)
>
> 29. The particular physical designs of mating elements are merely exemplary. In the embodiments discussed above, the connection between the device incorporating first field transducer (the device mounted on the instrument) and the rest of the position detecting system is made through hard-wired connection with a plug. Such a hard-wired connection can be replaced by a radio, infrared or other wireless telemetry link, in which case the device desirability includes an independent power supply such as a battery. Telemetry avoids the physical encumbrance of loose wires trailing from the instrument. (Acker, col. 12, ll. 61-67.)

From our review of the Kassam Declaration, we make the following findings of fact:

> 30. I [Dr. Kassam] understand that the current application has been rejected because the invention as claimed is considered obvious in view of a patent that discloses a wired or tethered instrument communicating with a surgical navigation system. (Kassam, p. 1, ¶ 5.)
>
> 31. I [Dr. Kassam] believe that the use of wireless communication between an active smart instrument and a surgical navigation system has been recognized as a significant advance. (Kassam, pp. 1-2, ¶ 6.)

From our review of the Nogler Declaration we make the following findings of fact:

32. I [Dr. Nogler] understand that the current application has been rejected because the invention as claimed is considered obvious in view of a patent that discloses a wired or tethered instrument communicating with a surgical navigation system. (Nogler, p. 2, ¶ 5.)

33. I [Dr. Nogler] believe that the use of wireless communication between an active smart instrument and a surgical navigation system has been recognized as a significant advance. (Nogler, p. 2, ¶ 6.)

34. The use of a wireless hand piece that can be tracked by the surgical navigation system is much less cumbersome and provides a significantly greater range of motion to me in performing these surgical techniques allowing me to perform these tasks properly, in less time and with lower fatigue A wired handpiece has a wire that drags, can catch on other instruments and wires, and will actually pull against the direction I need to move the hand piece. (Nogler, p. 2, ¶ 6 / c.)

From our review of the Klarsfeld Declaration we make the following findings of fact:

35. I [Dr. Klarsfeld] understand that the current application has been rejected because the invention as claimed is considered obvious in view of a patent that discloses a wired or tethered instrument communicating with a surgical navigation system. (Klarsfeld, p. 2, ¶ 5.)

36. I [Dr. Klarsfeld] believe that the use of wireless communication between an active smart instrument and a surgical navigation system has been recognized as a significant advance. (Klarsfeld, p. 2, ¶ 6.)

37. The use of a wireless hand piece that can be tracked by the surgical navigation system is much less cumbersome and provides a significantly greater range of motion to me in performing these surgical techniques allowing me to perform these tasks properly, in less time, and with lower fatigue. A wired hand piece has a wire that drags, can catch on

other instruments and wires, and will actually pull against the direction I need to move the hand piece. In addition, for optical systems, it is important to be able to face the tracking device towards the camera at all times. The inclusion of wires makes it more difficult to properly angle the tracking device so the device is visible to the cameras. (Klarsfeld, p. 2, ¶ 6 / c.)

38. . . . the wireless, hardwired issue is so important that a number of companies that make tracking implements and devices have abandoned hard-wired active optical systems in favor of passive wireless optical systems and have not developed wireless active optical tracking devices as claimed in the present application. (Klarsfeld, p. 2, ¶ 6. / e.)

PRINCIPLES OF LAW

On appeal, Appellants are responsible for showing that the Examiner erroniously rejectied the claims by not establishing a legally sufficient basis for combining the teachings of the prior art. Appellants may show this by demonstrating that the Examiner failed to provide sufficient evidence to show that one having ordinary skill in the art would have done what Appellant did. *United States v. Adams*, 383 U.S. 39 (1966); *In re Kahn*, 441 F.3d 977, 987-988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006); *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick, Co.*, 464 F.3d 1356, 1360-1361, 80 USPQ2d 1641, 1645 (Fed. Cir. 2006). The mere fact that all the claimed elements or steps appear in the prior art is not per se sufficient to establish that it would have been obvious to combine those elements. *United States v. Adams*, *id*; *Smith Industries Medical Systems, Inc. v. Vital Signs, Inc.*, 183 F.3d 1347, 1356, 51 USPQ2d 1415, 1420 (Fed. Cir. 1999). The Supreme Court, in *KSR Int'l v. Teleflex Inc.*, 127 S.Ct. 1727, WL1237837, 82 USPQ2d 1385, (2007) stated that "[t]throughout this

Court's engagement with the question of obviousness, our cases have set forth an expansive and flexible approach ...." *KSR* at 11. The Court emphasized that "the principles laid down in *Graham* reaffirmed the '**functional approach**' of *Hotchkiss*, 11 How. 248." *KSR* at 11 (citing *Graham v. John Deere Co.*, 383 U.S. 1, 12 (1966) (emphasis added)).

ANALYSIS

We begin with the rejection of the claims under 35 U.S.C. § 103(a) as being unpatentable over Chader in view of well known prior art. We turn first to claims 1 and 29. The Examiner proposes to modify the tethered instrument of Chader with a wireless instrument based upon the general concept that wireless transmission is old and well known in the prior art. The Examiner opines that since an artisan is limited to wired or wireless transmission of signals, the selection of either one would have been obvious to an artisan as an artisan would have been motivated by the inherent desirable features of using wireless transmission over wired transmission. (Answer 4). Although the Examiner's position has been clearly articulated, the Examiner does not provide evidence that would have suggested the use of a wireless system for a smart instrument used in a surgery system. Althought, we find from fact 2 that "[t]ypically, the surgical instruments are either tethered to the computer system or are wireless," the Examiner has not relied upon the admitted prior art in conjunction with Chader as the basis for the rejection. We are cognizant of the court's statement in *KSR*, "[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her

technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance, the fact that a combination was obvious to try might show that it was obvious under 35 U.S.C. § 103." *KSR*, 127 S.Ct. at 1742.

While based upon all of the evidence of record we agree with the Examiner that an artisan would have had good reason to pursue known options within the artisan's grasp. From the Examiner's reliance on Chader, without further evidence, showing that it was known or obvious to have or use wireless surgical instruments surgical instruments, we do not consider the Examiner to have established that there was an identified, predicted solution, or that there was a design need or market pressure to make the surgical instrument of Chader have a wireless connection. In sum, the Examiner has failed to establish, based on Chader alone, that it would have been obvious to an artisan to replace the tethered connection in Chader with a wireless connection, such that bi-directional communication is solely through a wireless connection and that the smart instrument transmits information when the smart instrument is placed within a field of detection. It follows that we cannot sustain the rejection of claims 1 and 29. We similarly cannot sustain the rejection of claim 23 because the claim also requires a wireless connection between the surgical instrument and the system. The rejection of claims 1, 3-23, 25-29, 31-34, 80-100, 102, 105, and 106 under 35 U.S.C. § 103(a) as being unpatentable over Chader is not sustained.

We turn next to the rejection of the claims under 35 U.S.C. § 103(a) as being unpatentable over Chader in view of Acker. We begin with claims 1 and 29. At the outset, we find from fact 2 that typically, surgical instruments are either tethered to the computer system or are wireless. We find from fact 3 that an object of the invention of providing an image-guided surgery system "is achieved by providing wireless instruments with several improvements." We find from fact 4 that by storing the calibration information in the instruments themselves the image-guided system of the invention is capable of re-calibrating damaged or imperfect instruments without going through a complex field calibration process." We find from facts 6 and 7 that an object of the invention is an improved control interface between the user operating the instruments and the computer system. The invention accomplishes this object by providing operating controls integrated into the instruments. We find from fact 8 that an additional object of the invention is to provide an improved image-guided surgery computer cart assembly for housing the computer system. As correctly noted by Appellants (Br. 4) and the Examiner (Answer 3) the Chader disclosure only contemplates or discloses a smart instrument that is hard wired to the computer system. However, we find from fact 24 that Acker relates to medical probes having field transducers for detecting the disposition of the probe. From fact 27 we find that the system of Acker determines the position of an object in a frame of reference of the field transducers or antennas. Thus, Acker is directed to determining the position or location of

a surgical instrument. From Figs. 1 and 2 of Acker we find that sensor or field transducer 30, mounted on surgical forceps 46 is connected to terminal block or plug 35. In addition, we find from fact 29 that although the embodiment described by Acker includes a hard wired connection between the transducer mounted on the instrument and the rest of the position detecting system, that Acker describes replacing the hard wired connection with a radio, infrared, or other wireless telemetry link. Moreover, from fact 29 we additionally find that Acker recognizes that telemetry avoids the physical encumbrance of loose wires trailing from the instrument. From the description in Acker that the surgical instrument can either be tethered to the rest of the system or connected in a wireless fashion, we hold that an artisan would have been motivated to replace the tethered connection of Chader with a wireless connection as expressly suggested by Acker. The motivation would have been for the specifically described recognition that a wireless connection would avoid the physical encumbrance of loose wires trailing from the instrument.

We are not persuaded by Appellants' contention (Br. 4) that if a wireless system were an easy expedient, Chader would have disclosed both wired and wireless systems. The fact that Chader does not describe a wireless system does not mean that a wireless system would not have been obvious to Chader. In addition, Appellants' contention does not address what the combined teachings and suggestions of Chader and Acker would have suggested to an artisan. Nor do we agree with Appellants' contention

that the Declarations[3] provide evidence that shows the difficulties created by the prior Chader type devices in a surgical setting and the unobvious benefits of the devices as claimed in claim 1. Although page 2 of each of the Klarsfeld, Nogler, and Kassam Declarations describe problems associated with tethered surgical instruments, Acker specifically recognizes (fact 29) that a wireless system avoids the physical encumbrance of loose wires trailing from the instrument. From this description in Acker, we find that the prior art recognizes problems with having tethered surgical instruments, and suggests replacing a tethered connection with a wireless connection. As to Appellants' assertion regarding the unobvious benefits of the device set forth in claim 1, we note from fact 3 that the object of providing an image-guided surgical system is achieved by providing wireless instruments with several improvements. We find from facts 4-8 that these improvements relate to storing calibration information in the instruments, providing operating controls integrated into the instruments, and providing an improved surgery cart assembly. However, from our review of claim 1, we fail to find these features in the claim. As broadly drafted, the claim is met by the combined teachings and suggestions of Chader and Acker because, as correctly advanced by the Examiner in the Answer, upon making the system of Chader wireless, the bidirectional communications already present in the tethered system of Chader will continue to be wireless bi-directional

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[3] Although Appellants refer to two Declarations being submitted, we note that the record reflects three declarations being filed, e.g., the Kassam, Klarsfeld, and Nogler Declarations.

communications. In addition, the wireless system will only operate when the wireless instrument is within a field of detection because this is how wireless systems operate. For example, if a television has a wireless remote control, it will only operate within a set range, as will a cordless phone that will operate from within a prescribed radius of the base unit.

Nor are we persuaded by Appellants' contention (Br. 6) that Acker only transmits the location of the sending unit and does not transmit data relative to the configuration of the magnetic devices of Acker to the sending unit. Appellants add that "[t]his is sending position or location information in a wireless manner and not the sending of data and instructions as in the present invention." From fact 20, we agree with the Examiner that Chader describes the controller 48 performing a variety of functions, such as controlling the acquisition of data. For example, button 46 may be depressed to obtain a specific coordinate at the point where the button is depressed. As an alternative, the instrument may be placed over a portion of a patient and the button is depressed to produce an image. From this description in Acker of providing a coordinate or an image, we find that Acker describes more that sending data indicating a location or position. Note that the providing of an image of a portion of a patient and displaying the image on the screen is the sending of data.

Nor are we persuaded by Appellants contention (Br. 4) that obvious to try is not the appropriate test of obviousness. Appellants are correct that there needs to be a reasonable expectation of success to support the combination of references. However, as stated in by the court in *KSR*, 127 S.Ct. at 1742, "[w]hen there is a design need or market pressure to solve a

problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance, the fact that a combination was obvious to try might show that it was obvious under 35 U.S.C. § 103." We agree with the Examiner that an artisan would have had good reason to pursue known options within the artisan's grasp. However, although we found, *supra*, that the disclosure of Chader alone was insufficient to establish a design need or market pressure to solve a problem, or that there are identified predictable solutions, we find that in view of the description of Acker of having either a wired or wireless connection, that the art recognizes a predicable solution of having wireless communication for the surgical system. In addition, from the description of Acker that a wireless system avoids the physical encumbrance of loose wire trailing from the system, we find that there was a design need or market pressure to overcome the problem of tethered wires by making the connection wireless.

Nor are we persuaded by Appellants' contention (Br. 6) that it would have been recognized that at the time of the invention of Chader and Appellants, that the amount of data needed to be transferred necessitated a hard wired system. We find nothing in the language of claims 1 and 29 that would require the transfer of more data than the wireless system of Acker would have suggested to an artisan. Nor do we find the claims to recite any particular amount of data to be transferred.

Nor are we persuaded by Appellants' contention (Br. 5) that in Acker, the system is a variant of a well known magnetic system, and that Acker's system does not transmit data. We find from fact 29 that the wireless system may be "radio, infrared, or other wireless telemetry." Thus, we find that Acker describes a range of different types of wireless systems that may be used for the wireless connection. We find no evidence to support a position that the range of wireless systems of Acker would not be able to transmit the data required by Chader's system.

In addition, we note from facts 30, 32, and 35 that each of the Declarations assert that the application has been rejected in view of a patent that discloses a wired or tethered instrument communicating with a surgical navigation system. We do not consider this statement, found in each of the Declarations, to accurately describe the rejections, because the first rejection was based on Chader in view of knowledge in the art of wired and wireless systems, and because the second rejection is based on Chader in view of Acker, where Acker describes surgical navigation system having either a wired or wireless connection between the instrument and the remainder of the system.

Nor are we persuaded by Appellants' contention (Reply Br. 3) that

> The Lack Of Any Suggestion of a Wireless Data Communication Link Between the Smart Instrument and the Computer System in Chader et al. is Evidence that Such Wireless Data Communication Was Not Considered an Obvious Alternative to the Hard Wired Data Communication System Disclosed Therein.
> (Emphasis original.)

Appellants argue to the effect that because Chader does not suggest a wireless data communications system, that the system is therefore non-obvious. Appellants' argument blurs the distinction between 102 and 103. the fact that Chader does not provide a teaching or suggestion of a wireless system is not dispositive of the issue of the non-obviousness of a wireless system. The issue is what the prior art, taken as a whole, would have suggested to an artisan. See *Tokyo Shiabura Elec. Co., Ltd. v. Zenith Radio Corp.*, 548 F.2d 88, 89, fn2, 193 USPQ 73, 75, fn2. (U.S. Ct. Appls. 3rd Cir. 1977),

Nor are we persuaded by Appellants' contention (Reply Br. 6) that Dr. Kassam's Declaration points to the recognition of a long felt need for a wireless surgical navigation system. Appellants (*id.*) point to the assertion in the Kassam Declaration that in neurosurgery, there are a large number of instruments and devices that require power cords, suction tubes and the like. A wired piece has a wire that drags, can catch on other instruments and wires, and can actually pull against the direction the surgeon needs to move the hand piece. As we noted, *supra*, Acker recognizes the problem of loose wires trailing from the instrument, and solves the problem by replacing the wired system with a wireless system. From the disclosure of Acker, we find that the applied prior art both recognized the problem associated with tethered cords for surgical instruments and also suggested the solution to the problem, e.g., a wireless connection. Appellants additionally point to the assertion in the Klarsfeld Declaration that the wireless, handwired issue is so important that a number of companies have abandoned hardwired, active optical systems in favor of passive wireless systems, and have not developed

wireless active tracking devices, as claimed. From our review of claims 1 and 29, we do not find any language regarding an "active" wireless system, or any other language that would distinguish the claimed wireless transceiver from the applied prior art. Rather, we agree with the Examiner (Answer 9) that "Appellants' invention as claimed does not involve any particular kind of wireless communication, no specific structure that enables wireless transmission and reception of signals and no specific structure that would be required to modify the handwired prior art systems to use wireless transmission." We further agree with the Examiner (Answer 10) that there is not teaching or evidence in Chader that hard wires are necessary or critical for proper operation of the invention."

From all of the above, we find that the strength of the prima facie case advanced by the Examiner is not outweighed by the evidence and arguments presented by Appellants. The rejection of claims 1 and 29, and dependent claims 2-22, 31-34, 80-83, 91-100, 102, 105, and 106 is sustained.

We turn next to claims 23-28 and 84-90. Only claim 23 has been argued by Appellants. Accordingly, we select claim 23 as representative of the group. Claim 23 recites, *inter alia*, an activation button, a release button operatively coupled to the adapter surface, and that the smart instrument is adapted to be interchangeably coupled with a patient tracking system and at least one generic instrument. From our review of the language of the claim, we find that the activation button and release button are not connected to any structure, other than the broad language that the release button is operationally coupled to the adapter interface. Nor do we find any recited function relating to the operation of these buttons. We find from the

description in Chader a disclosure of having one or more buttons 46 (fact 21) that cause the system to perform specific functions, such as to acquire data. In addition, Chader describes (fact 15) that the instrument includes means for detecting when the attachment means is connected to the instrument body, and subsequently removed. However, this detection is done by a current sensor 62 (Fig. 4), and, from our review of Chader, is not disclosed as being done as a result of depressing button or buttons 46. However, since claim 23 does not recite what is being activated by the activation button, we find that this limitation is met by Chader as pushing button 46 results in the activation of sending data or images (fact 21). In addition, Fig. 3, appears to show a button, unlabeled, for the release of engagement tabs 52 from the instrument body 32. Even if we are incorrect, and Chader does not disclose a button for releasing the instrument, it would have been obvious to an artisan to have provided a button for release of instrument body 32 from housing 50, for the purpose of ease of release of an instrument for replacement with another instrument.

With regard to the claimed interchangeability feature, we note that according to Appellants' Specification, the adapter interface is interface 210 found in Figs. 2 and 3. We find from facts 14 and 16 that Chader describes having interchangeable instruments. From all of the above, we are not persuaded of any error on the part of the Examiner in rejecting claim 23, and the claims dependent thereon. The rejection of claims 23 and claims 25-28 and 84-90, dependent therefrom, is sustained.

CONCLUSION OF LAW

On the record before us, we hold that the teachings and suggestions of Chader would not have suggested the claimed subject matter, but that the teachings and suggestions of Chader in view of Acker would have suggested the language of claims 1, 3-23, 25-29, 31-34, 80-100, 102, 105, and 106.

DECISION AND ORDER

The Examiner's rejection of claims 1, 3-23, 25-29, 31-34, 80-100, 102, 105, and 106 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a) (1)(iv).

AFFIRMED

vsh

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